What is claimed is:

1. An output apparatus for transforming and outputting bitmap data comprising:

a bitmap data storage unit for storing bitmap data;

a vectorization unit for producing first vector data by vectorizing at least one part of said bitmap data;

a data production unit for producing bitmap data after transformation that is composed of a plurality of dots having a predetermined positional relationship with a certain position on said bitmap data; and

an output unit for outputting said bitmap data after transformation produced by said data production unit,

said data production unit setting up a color of said certain position that is determined based on said first vector data and a color of a dot on said bitmap data for said dot having said predetermined positional relationship with said certain position.

2. An output apparatus for transforming and outputting bitmap data comprising:

a bitmap data storage unit for storing bitmap data;

a vectorization unit for producing first vector data by vectorizing at least one part of said bitmap data;

a vector data transformation unit for producing second vector data by transforming said first vector data that was produced by said vectorization part;

a data production unit for producing bitmap data after transformation based on said second vector data and said bitmap data; and

an output unit for outputting said bitmap data after transformation produced by said data production unit.

3. An output apparatus for transforming and outputting bitmap data comprising:

a bitmap data storage unit for storing bitmap data;

a vectorization unit for producing first vector data by vectorizing at least one part of said bitmap data;

a data production unit for producing bitmap data after transformation based on an inverse function of a certain calculation, said bitmap data, and said first vector data; and

an output unit for outputting said bitmap data after transformation produced by said data production unit,

said data production unit comprising:

an inverse transformation unit for producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed,

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using said inverse function of said certain calculation;

a color determination unit for determining a color of a position specified by said second coordinate information, based on said first vector data produced by said vectorization unit and a color of a dot on said bitmap data, and then setting up said color determined thereby for said target dot specified by said first coordinate information; and

a control unit for controlling so that said second coordinate information production by said inverse transformation unit and said dot color determination by said color determination unit can be performed on all dots on bitmap data to be outputted.

4. The output apparatus according to claim 3, wherein:

in a case where a line represented by said first vector data that was produced by said vectorization unit passes through a dot including a position specified by said second coordinate information,

said color determination unit determines in such a manner that if said position is placed above said line, a color of a dot immediately above said dot including said position is determined as a color of said position, or if placed below said line, a color of a dot immediately below said dot including said position is determined as a color of said position, and then sets up said color determined thereby for said target dot specified by said first coordinate information.

5. The output apparatus according to claim 3, wherein:

in a case where a line represented by said first vector data that was produced by said vectorization part passes through a dot including a position specified by said second coordinate information,

said color determination unit determines in such a manner that if said position is placed on a left hand with respect to said line, a color of a dot immediately on a left, adjacent to said dot including said position is determined as a color of said position, or if placed on a right hand, a color of a dot immediately on a right, adjacent to said dot including said position is determined as a color of said position, and then sets up said color determined thereby for said dot specified by said first coordinate information.

6. The output apparatus according to any one of claims 1 through 5, wherein

said certain calculation is for forming a bird's eye view.

7. An output apparatus comprising:

a bitmap data storage unit for storing bitmap data;

a bitmap data acquisition unit for acquiring bitmap data from said bitmap data storage unit;

a jaggy elimination processing unit for executing processing of eliminating jaggies appearing on said bitmap data;

a transformation rule retention unit for retaining at least one bitmap data transformation rule that is composed of a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part;

a data transformation unit for transforming part of said bitmap data according to said rule; and

an output unit for outputting data that is produced based on transformation results from said data transformation unit and processing results from said jaggy elimination processing unit.

8. The output apparatus according to claim 7, wherein:

said certain part is in a rectangular shape having a size of $n \times m$, where n and m represent a positive integer.

9. The output apparatus according to claim 8, wherein:

said size is 3×3.

10. An output apparatus comprising:

a bitmap data storage unit for storing color bitmap data;

a bitmap data acquisition unit for acquiring said color bitmap data from said color bitmap data storage unit;

a jaggy elimination processing unit for executes processing of eliminating jaggies appearing on said color bitmap data; and

an output unit for outputting data that is produced based on processing results from said jaggy elimination processing unit.

11. The output apparatus according to claim 10, wherein

said jaggy elimination processing unit comprises:

a jaggy detection unit for detecting jaggies based on a brightness of a dot on said color bitmap data, and

a jaggy elimination unit for eliminating said jaggies detected by said jaggy detection unit.

12. The output apparatus according to any one of claims 10 and 11, wherein

said jaggy elimination processing unit further comprises a vector data production unit for producing vector data, based on all stair-like straight lines that were detected as said jaggies, by drawing a straight line from a midpoint of one straight line and a midpoint of

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another straight line adjacent thereto.

13. The output apparatus according to claim 12, further comprising:

a color determination unit for determining a color of a dot in such a manner that in a case where a line represented by said vector data that was produced by said vector data production unit passes through said dot, a color of a dot above said dot is setup for an upper side of said dot, and a color of a dot below said dot is setup for a lower side of said dot.

14. The output apparatus according to claim 12, further comprising:

a color determination unit for determining a color of a dot in such a manner that in a case where a line represented by said vector data produced by said vector data production unit passes through said dot, a color of a dot on a left, adjacent to said dot is setup for a left side of said dot, and a color of a dot on a right, adjacent to said dot is setup for a right side of said dot.

15. A method for transforming and outputting bitmap data comprising the steps of:

producing first vector data by vectorizing at least one part of bitmap data stored;

producing bitmap data after transformation that is composed of a plurality of dots having a predetermined positional relationship with a certain position on said bitmap data; and

outputting said bitmap data after transformation,

said step of producing bitmap data after transformation, setting up a color of said certain position that is determined based on said first vector data and a color of a dot on said bitmap data for said dot having said predetermined positional relationship with said certain position.

16. A method for transforming and outputting bitmap data comprising the steps of:

producing first vector data by vectorizing at least one part of bitmap data stored;

producing second vector data by transforming said first vector data;

producing bitmap data after transformation based on said second vector data and said bitmap data; and

outputting said bitmap data after transformation.

17. A method for transforming and outputting bitmap data comprising the steps of:

producing first vector data by vectorizing at least one part of bitmap data stored;

producing bitmap data after transformation based on an inverse function of a certain calculation, said bitmap data, and said first vector data; and

outputting said bitmap data after transformation,

said step of producing bitmap data after transformation comprising:

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producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed, using said inverse function of said certain calculation;

determining a color of a position specified by said second coordinate information based on said first vector data and a color of a dot on said bitmap data, and then setting up said color determined thereby for said target dot specified by said first coordinate information;

controlling so that said step of producing said second coordinate information and said step of setting up said color determined thereby for said target dot specified by said first coordinate information can be performed on all dots on bitmap data to be outputted.

18. A method for outputting comprising the steps of:

acquiring bitmap data stored;

eliminating jaggies appearing on said bitmap data;

transforming part of said bitmap data according to a transformation rule having a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part; and

outputting data that is produced based on transformation results obtained in said data transformation step and processing results obtained in said jaggy elimination step.

19. A method for outputting comprising the steps of:

acquiring color bitmap data stored;

eliminating jaggies appearing on said color bitmap data; and

outputting data that is produced based on processing results obtained in said jaggy elimination step.

20. A computer program that enables a computer to execute processing of transforming and outputting bitmap data, comprising the steps of:

producing first vector data by vectorizing at least one part of bitmap data stored thereon;

producing bitmap data after transformation that is composed of a plurality of dots having a predetermined positional relationship with a certain position on said bitmap data; and

outputting said bitmap data after transformation,

said step of producing bitmap data after transformation, setting up a color of said certain position that is determined based on said first vector data and a color of a dot on said bitmap data for said dot having said certain positional relationship with said certain position.

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21. A computer program that enables a computer to execute processing of transforming and outputting bitmap data, comprising the steps of:

producing first vector data by vectorizing at least one part of bitmap data stored thereon;

producing second vector data by transforming said first vector data;

producing bitmap data after transformation based on said second vector data and said bitmap data; and

outputting said bitmap data after transformation.

22. A computer program that enables a computer to execute processing of transforming and outputting bitmap data, comprising the steps of;

producing first vector data by vectorizing at least one part of bitmap data stored thereon;

producing bitmap data after transformation based on an inverse function of a certain calculation, said bitmap data, and said first vector data; and

outputting said bitmap data after transformation,

said step of producing bitmap data after transformation, comprising the steps of:

producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed, using said inverse function of said certain calculation;

determining a color of a position specified by said second coordinate information based on said first vector data and a color of a dot on said bitmap data, and then setting up said color determined thereby for said target dot specified by said first coordinate information; and

controlling so that said step of producing said second coordinate information and said step of setting up said color determined thereby for said target dot can be performed on all dots on bitmap data to be outputted.

23. A computer program that enables a computer to execute the steps of:

acquiring bitmap data stored thereon;

eliminating jaggies appearing on said bitmap data;

transforming part of said bitmap data according to a transformation rule having a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part; and

outputting data that is produced based on transformation results obtained in said data transformation step and processing results obtained in said jaggy elimination step.

24. A computer program that enables a computer to execute the steps of:

acquiring color bitmap data stored thereon;

eliminating jaggies appearing on said bitmap data; and

outputting data that is produced based on processing results obtained in said jaggy

5   elimination step.